DIADASIA PATTON; A GENUS OF BEES.

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THE genus Diadasia was first described by Patton in the *Bulletin of the United States Geological Survey* (vol. 5, p. 475). The type is the *Melissodes enavata* of Cresson, which, as Patton showed, is nearer to Anthophora than to Melissodes. The genus occurs in our southwestern States, and is, undoubtedly, of neotropical derivation. Ashmead has recently placed it as a synonym of the South American Ancyloscelis Latreille, but it appears to me to be sufficiently distinct.

Our species of Diadasia have not hitherto been tabulated, and as I have now seen all the species but one, I offer tables for their identification. The species of Cresson are in the collection at the Philadelphia Academy; I have been permitted to borrow cotypes from that institution, through Mr. Viereck, and this has enabled me to clear up several doubtful points. *Entechnia toluca* (*Melissodes toluca* Cresson) and *Dasiapis ochracea* Ckll., are included in the table, as the first has for some years stood in our lists as a Diadasia, while the latter is often mistaken for a species of that genus.

FEMALES.

Hair of head and thorax above short and dense, orange fulvous; abdomen with four clean cut bands of fulvous tomentum on a black ground; outer side of basal joint of hind tarsi with very long, strongly plumose, dark chocolate-colored hairs; inner side of this joint with shining dark ferruginous hair; tegulæ red; flagellum all dark; front rough with very close punctures . . . . . *sumichrasti* (Cresson).

Hair of thorax not thus colored; or if fulvous, abdomen not thus banded 1.

1. Scopa on outside of hind legs dark gray or blackish (in *afflicta* paler on basal part of tibiæ.) . . . . . 2.
   Scopa on outside of hind legs white, or not gray or blackish . 4.
2. Very small; less than 8 mm. long; abdomen with narrow bands of tomentum on apical margins of segments; mesothorax and scutellum

minutely, extremely densely punctate all over, therefore rough and not shining . . . . . *Entechnia toluca* (Cresson).
Larger; at least over 8 mm. long; mesothorax well punctured but shining . . . . . 3.

3. Large and stout; about 12 mm. long, or more *D. bituberculata* (Cresson).
Smaller; about 10 mm. long, or less . . . *afflicta* (Cresson).

4. Very large species, about 15 mm. long . *megamorpha* Cockerell.
Large stout species, about 13 mm. long; hair of thorax above ochraceous or fulvous, with the disc bare . . . . . 5.
Smaller species, less than 12 mm. long . . . . . 7.

5. Hind spur of hind tibia straight or practically so; clypeus more closely punctured, the large punctures stronger . . *enavata* (Cresson).
Hind spur of hind tibia strongly bent at end; clypeus less closely punctured, the large punctures weaker . . . . . 6.

6. Legs dark red; abdominal segments 3 and 4 with a narrow apical fringe, the rest thinly hairy . . . . *australis* (Cresson).
Legs black; abdominal segments 3 and 4 with lateral areas where the surface is raised and shining black, the hair on it being very sparse and dark . . . . . *australis opuntiæ* (Cockerell).

7. Anterior edge of abdominal bands curved, the basal part of the segments dark; comparatively large and broad form: hind spur of hind legs curved at end . . . . *australis rinconis* (Cockerell).
Anterior edge of abdominal bands not curved, the pubescence, except at margin, uniformly distributed; smaller forms . . . . 8.

8. Hair on inner side of basal joint of hind tarsi light ferruginous; abdomen entirely covered with yellowish tomentum *Dasiapis ochracea* Ckll.
Hair on inner side of basal joint of hind tarsi fuscous or black . 9.

9. Face broad, eyes scarcely converging below; eyes narrow, especially above; mesothorax shining, impunctate in middle, at sides with large scattered punctures; abdomen broad, with narrow ochreous hair-bands on hind margins of segments 2 to 4 . . *laticauda* Cockerell.
Eyes broader and shorter, distinctly converging below; mesothorax duller, the sides with very numerous feeble minute punctures *diminuta* (Cresson).
Larger than the two last (11 mm. long) and at once separated from them by having much fuscous or black hair on the abdomen; there are ochreous marginal hair-bands . . . . . *friesei* Cockerell.

MALES.

Hair of face black . . . . . *nigrifrons* (Cresson).
Hair of face not black . . . . . 1.

1. Apex of abdomen truncate; tongue very long; maxillary palpi not fringed with hair; size very small . . *Entechnia toluca* (Cresson).

Apex of abdomen bidentate . . . . . 2.

2. Abdomen above with much black hair on discs of segments beyond the second . . . . . 3.
Abdomen above without black hair . . . . . 6.

3. Large; at least 13 mm. long; apical teeth of abdomen large and divergent . . . . . *bituberculata* (Cresson).
Smaller; about 10 mm. long; apical teeth of abdomen small and close together . . . . . 4.

4. Hind tibiæ thickened, but shape not remarkable; basal joint of hind tarsi dark ferruginous, long, slender, and curved, its apex not produced, the hair on its inner side orange; maxillary palpi not fringed with hair, except a little tuft at the end of second joint; tegulæ light rufous *sumichrasti* (Cresson).
Hind tibiæ greatly swollen, narrowing to a very slender base, shaped something like a wine-bottle; basal joint of hind tarsi dark, not so long, with black or dark fuscous hair on inner side . . . . . 5.

5. Tegulæ dark but decided red; second submarginal cell much narrowed above; hair of mesothorax white . . . . . *afflicta* (Cresson).
Tegulæ piceous: second submarginal cell scarcely narrowed above; hair of mesothorax and scutellum gray . . *afflicta peraffl icta* Cockerell.

6. Basal joint of hind tarsus ending in a long process; species covered with gray hair; maxillary palpi with no fringe of long hairs, but second joint ciliate . . . . . 7.
Basal joint of hind tarsus not ending in a long process . . 8.

7. Larger forms . . . . . *australis* (Cresson).
Smaller, down to about 10 mm. long . *australis rinconis* (Cockerell).

8. Very large, about 16 mm. long . . . *megamorpha* Cockerell.
Rather large, length over 10 mm., the pubescence more or less ochraceous on thorax, sometimes quite fulvous; facial quadrangle longer than broad . . . . . 9.
Small, length less than 10 mm. . . . . 10.

9. Hair of thorax more or less fulvous . . . *enavata* (Cresson).
Hair of thorax paler . . . . *enavata* var. *densa* (Cresson).

10. Abdomen above shining and sparsely hairy, not banded; face broad, orbits little converging below (distinctly less than in *diminuta*) *nitidifrons* Cockerell.
Abdomen hairy, the hind margins of the segments banded *diminuta* (Cresson).
Abdomen covered with appressed white tomentum *sphæralcearum* Cockerell.

D. albovestita Provancher, I have not seen. It was described from the female; length just over 8 mm., flagellum reddish beneath, tegulæ brownish, margins of abdominal segments pale yellow and covered with dense whitish pubescence; apex red-

dish brown. It must be similar to *D. sphæralcearum*, but the antennæ are differently colored.

The following species are not considered valid: —

D. tricincta Provancher, from California, is said by Fowler to be a synonym of *enavata*. This cannot be, from the description; but it is not apparent that it differs from *afflicta*. *D. nerea* Fowler, from California, is *nigrifrons* Cresson; *D. cinerea* Fowler, from California, is *bituberculata* Cresson. Fowler can hardly be blamed for describing these as new, as when he published his paper Cresson's species were supposed to belong to Melissodes. *D. ursina* (Cresson) is *enavata*. *D. apacha* (Cresson) is *diminuta*. The types of *apacha* have been in some liquid, presumably alcohol, and this accounts for part of their characters. I formerly separated the specimens of the Middle Sonoran zone as *apacha*, leaving those of the Upper Sonoran as *diminuta*; but the comparison of specimens from various localities appears to show that the characters relied upon are too variable to serve for specific distinction.

Two forms are new: —

Diadasia afflicta (Cr.) subsp. **perafflicta** n. subsp.

♂. — Tegulæ piceous; second submarginal cell scarcely narrowed above; hair of mesothorax and scutellum gray.

♀. — This sex does not materially differ from true *afflicta*.

Hab.— Clark Co., Kansas, 1962 ft., May (F. H. Snow, 1191); Hamilton Co., Kansas, 3350 ft. (F. H. Snow, 460); Wallace Co., Kansas, 3000 ft. (F. H. Snow, 852). Three females, from the same three localities, are numbered 851, 1197, and 445.

Diadasia sphæralcearum n. sp.

♂. — Length 7½ mm.; like *D. diminuta* Cr., but with shorter, perfectly white pubescence, and a narrower, more parallel-sided abdomen; the pubescence of the abdomen, instead of being loose and suberect as in male *diminuta*, is appressed (except on first segment) and covers the surface; aside from the pubescence, the hind margins of the segments are themselves white; the apex is bidentate, the teeth being like those of *diminuta*, but rather larger; hind legs constructed as in *diminuta*; shining hairless triangle of metathorax much smaller than in *diminuta*; posterior part of mesothorax almost nude; tegulæ subhyaline, ferruginous, dark at base; antennæ entirely black.

Hab.— Between Las Cruces and Mesilla Park, New Mexico, at flowers of *Sphæralcea fendleri lobata* (Wooton), middle of August (Cockerell). It was accompanied by *Macroteropsis latior* (Ckll.).

The distribution of the species in States, etc., so far as known, is as follows: —

MEXICO.— *D. diminuta* Cr.; *sumichrasti* Cr.; *enavata* Cr. (Lower California).

CALIFORNIA.— *D. albovestita* Prov.; *afflicta* Cr. (*tricincta* Prov.); *nigrifrons* Cr.; *bituberculata* Cr.; *nitidifrons* Ckll.; *laticauda* Ckll.; *friesei* Ckll.; *enavata* Cr.; *diminuta* Cr. (Palm Spring, *Davidson*); *australis rinconis* Ckll.; *australis opuntiæ* Ckll.

NEVADA. — *D. bituberculata* Cr.

ARIZONA. — *D. diminuta* Cr. (Bill Williams' Fork, *Snow*; Grand Cañon, *Hopkins*); *australis rinconis* Ckll. (Bill Williams' Fork and Oak Creek Cañon, *Snow*); *enavata* Cr. (Oak Creek Cañon, *Snow*).

NEW MEXICO.— *D. diminuta* Cr.; *sphæralcearum* Ckll.; *australis* Cr.; *australis rinconis* Ckll.; *enavata* Cr.; *megamorpha* Ckll.

TEXAS.— *D. australis rinconis* Ckll. (part of Cresson's original *australis*, as shown by a ♀ cotype); *enavata* Cr.; *enavata* v. *densa* Cr. (a color variation merely); *afflicta* Cr.

KANSAS. — *D. australis* Cr. (Wallace Co., and Morton Co., *Snow*); *enavata* Cr. (Wallace Co., *Snow*); *diminuta* Cr. (Hamilton Co., *Snow*); *afflicta perafflicta* Ckll.

COLORADO.— *D. enavata* Cr. (Lamar, *Snow*, Palisade, *Gillette*, Julesburg, *Ball*, Trinidad, *Titus*); *enavata* v. *densa* Cr. (Rocky Ford, in beet field, *P. K. Blinn*); *diminuta* Cr. (Fort Collins, Trinidad, *Colo. Agric. Coll.*); *australis* Cr.

D. sumichrasti Cr., is peculiar for the densely punctured mesothorax, but the blade of maxilla is broad at base and narrow apically, as in true Diadasia. The maxillary palpi are long, 6-jointed. The sexes do not look much alike, but close comparison confirms their identity.

D. australis and its subspecies may be found visiting the flowers of Opuntia. The small species, *diminuta* and its allies, are addicted to the Malvaceæ. *D. megamorpha* (♀) was recorded from the flowers of *Sphæralcea angustifolia*, but the plant was really *S. fendleri lobata*, which had not then been differentiated.

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